REMARKS

By this Amendment, new claims 22-28 are added without adding new matter. Claims 3, 16 and 22-28 are pending. Favorable consideration and allowance are respectfully requested in light of the above amendment and the following remarks.

Rejection Under 35 U.S.C. § 102

Claims 3 and 16 were rejected under 35 U.S.C. § 102(b) over U.S. Patent No. 4,278,400 to Yamarik et al. ("Yamarik"). This rejection is respectfully traversed.

Claim 16 recites a component of a fluid flow machine, which comprises a coolant passage comprising at least one curved flow section configured to curve in a first flow direction to establish coolant medium flow in the first flow direction; and a second passage comprising a dust discharge aperture having a longitudinal axis essentially parallel to an axis of the fluid flow machine, the dust discharge aperture arranged at the trailing edge of the component and dimensioned to enable the introduction of a borescope through the dust discharge aperture and the second passage, and the second passage (i) branching off the coolant passage at the curved flow section and (ii) being arranged to extend in the first flow direction along a flow path which is tangential to the curved flow section. In the claimed component, the dust discharge aperture provides an inspection aperture through which the interior of the component can be inspected, and the dust discharge aperture also is arranged and dimensioned to allow dust and dirt particles contained in the cooling medium to exit from the second passage.

The Office asserts that Yamarik discloses a rotating blade with a curved flow section (36, 38) (i.e., outward passage 36 and inward passage 38) in a first flow

direction, and a second passage (56) (i.e., tip passage 56) parallel to the axis of the turbine and branching off the coolant passage tangentially to the curved flow section.

Applicants respectfully submit that Yamarik does not disclose or suggest every feature of claim 16. Claim 16 recites that the dust discharge aperture is arranged at the trailing edge of the component and dimensioned to enable the introduction of a borescope through the dust discharge aperture and the second passage. Yamarik discloses that the rotor blade is cooled using cooling air introduced in part through the forward conduit 40. Yamarik does not disclose or suggest that the tip cooling holes 58 are dimensioned and oriented to enable the introduction of a borescope through one of these holes. As such, Yamarik does not suggest that the tip passage 56 is suitable for the inspection of the interior of the blade. Also, in Yamarik's rotor blade, the turning vane 54 is positioned in the flow path with respect to the tip passage 56 such that it would directly obstruct viewing of the interior of the rotor blade.

Claim 16 also recites that "the second passage (i) branching off the coolant passage at the curved flow section and (ii) being arranged to extend in the first flow direction along a flow path which is tangential to the curved flow section" (emphasis added). Yamarik's rotor blade shown in the Figure includes a curved flow path indicated by a curved arrow. The curved flow path extends from the leading edge flow region 30 to the cavity 26 defined between the forward baffle 34 and the rearward baffle 28. The tip passage 56 is not tangential to this curved flow path. In contrast, the turning vane 54 is positioned inside the rotor blade to guide the flow into the cavity 26, not in a direction tangential to the curved flow path.

For at least the foregoing reasons, claim 16 is patentable over Yamarik. Claim 3, which depends from claim 16, is also patentable over Yamarik for at least the same reasons as those for which claim 16 is patentable. Therefore, withdrawal of the rejection is respectfully requested.

New Claims

Claims 22-28 depend directly or ultimately from claim 16. Claim 22 recites, *inter alia*, the features of "the second passage extends perpendicular to the first section and second section" and "the component further comprises a second wall including a first portion defining the second section and a second portion defining the second passage, wherein the first portion extends parallel to the first wall and the second portion extends perpendicular to the first wall" (emphasis added). In the exemplary embodiment of the component shown in Figure 2, the passage 7 is defined by a wall including a portion ("first portion") that also defines a section ("second section") of the flow passage through which the cooling medium flows from the curved flow section (i.e., in a downward direction in Figure 2). In this embodiment, another wall ("first wall") defines the "second section" and the section ("first section") of the flow passage through which the cooling medium flows toward the curved flow section (i.e., in an upward direction in Figure 2). As shown, the "second portion" extends perpendicular to the "first wall." Yamarik does not disclose these features of claim 22.

Claim 23 recites, *inter alia*, that "the second section is defined by the first wall and a third wall" and "the second passage is defined by the second wall and third wall." In the exemplary embodiment of the component shown in Figure 2, a "third

wall" defines the "first section" and the "second passage" 7. Applicants submit that the turning vane 54 defines the flow passage through the tip passage 56 in Yamarik's rotor blade.

Claim 24 recites, *inter alia*, "the first section is defined by a first wall and a second wall, the second wall defines the second passage " and "there is a direct line of sight from the dust discharge aperture through the second passage to the second wall." In the exemplary embodiment of the component shown in Figure 2, there is a straight line of sight from the dust discharge opening (leftward) through the "second passage" 7 to the left wall ("second wall") which defines the "first section" and the "second passage" 7. In Yamarik's rotor blade, the turning vane 54 obstructs such straight line of sight.

Claim 25 recites, *inter alia*, "there is a straight line of sight through the second section to the second wall." In the exemplary embodiment of the component shown in Figure 2, there is a straight line of sight (upwardly) through the "second section" of the flow passage through which the cooling medium flows from the curved flow section (downward in Figure 2) to the top wall "second wall." In Yamarik's rotor blade, the turning vane 54 obstructs such straight line of sight.

Claim 26 recites, *inter alia*, that "particles entrained in the cooling medium pass through the first section, through the second passage and are discharged through the inspection aperture, while the cooling medium which is relatively free of particles flows through the second section" (emphasis added). In the component of claim 26, dirt particles entrained in the cooling medium are discharged, due to their inertia, through the dust discharge aperture. This discharge occurs due to the flow speed of the cooling medium at the curved flow section of the flow passage and the

arrangement of the dust discharge aperture relative to the curved flow section. The particles, due to their mass and inertia, take the path through the dust discharge aperture and tend not to flow via the deflection into the "second section" of the flow passage and the further course of cooling air. As a result, there is relatively dust-free cooling air available for the further cooling of the component.

In Yamarik's rotor blade, a portion of the cooling air required to cool the blade is admitted through the forward conduit 40. Applicants submit that a significant portion of the cooling air admitted through the forward conduit 40 is discharged through the leading edge holes 52, while a significant portion of this cooling air is drawn through the apertures 48. The remainder of this cooling air is flowed trough the tip cooling holes 58. The portion of this cooling air that is not flowed over the leading edge 22 for film cooling is divided at the turning vane 54. A first portion of this cooling air is flowed via the tip passage 56 trough the tip cooling holes 58 and over the trailing edge 24 of the blade tip, while the remaining portion of this cooling air is turned inwardly by the turning vane 54 and flowed through the inward passage 38. Applicants submit that a significant portion of the particles entrained in the cooling air would remain on the inside of the turning vane 54 inside the rounded contour at the base 62, where the cooling air turns. Accordingly, Applicants submit that in Yamarik's rotor blade, the cooling medium that flows through the "second section" is not relatively free of particles.

Claim 27 recites, *inter alia*, that "the cooling medium flows through the first section to the curved flow section and then (a) flows away from the curved flow section through the second section, or (b) flows away form the curved flow section in

the first flow direction along the path tangential to the curved flow section." Applicants submit that Yamarik does not disclose the features of claim 27.

Lastly, claim 28 recites, *inter alia*, that "the cooling medium flows along a flow path from an end of the first section, through the second passage and to the dust discharge aperture, and the flow path is defined by a wall." Applicants submit that Yamarik does not disclose the features of claim 28.

Conclusion

For the foregoing reasons, allowance of the application is respectfully requested. If there are any questions concerning this response, to expedite prosecution, the Examiner is respectfully requested to contact the undersigned at the number given below.

Respectfully submitted,

BUCHANAN INGERSOLL & ROONEY PC

Date: October 31, 2007

By: _____
Edward A. Brown
Registration No. 35,033

P.O. Box 1404
Alexandria, Virginia 22313-1404
(703) 836-6620